Promoting Mealtime Communication Between Adolescent Mothers and Their Infants Through Videotape

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Promoting Mealtime Communication Between Adolescent Mothers and Their Infants Through Videotape

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ABSTRACT. *Objective.* **To use social learning theory to develop and examine the effectiveness of a 15-minute, culturally sensitive videotape in altering mealtime communication and attitudes among African-American adolescent mothers.**

Design. **Randomized clinical trial with baseline and follow-up evaluations.**

Setting. **High schools, WIC (Women, Infants, and Children) Clinics, and Family Support Centers serving low-income families.**

Participants. **Fifty-nine first-time, African-American adolescent mothers of infants.**

Intervention. **Intervention group viewed and received a copy of a videotape titled "Feeding Your Baby With Love." The messages, title, music, and setting were designed by an advisory group of six African-American adolescent mothers who were filmed feeding their infants in their homes.**

Measurements and Results. **During baseline and follow-up evaluations, mothers were videotaped feeding their baby and completed a questionnaire on attitudes toward mealtime behavior. Analysis of covariance with repeated measures indicated changes in both behavior and attitudes. At follow-up, intervention mothers were more involved with their infant and reported more favorable attitudes toward feeding and communication than control mothers.**

Conclusions. **Brief culturally sensitive videotapes may be effective strategies to promote parenting skills and to prevent social and health problems among adolescents.** *Pediatrics* **1997;99:432–437;** *adolescent parents, videotape, prevention, communication, feeding, mealtime.*

ABBREVIATIONS. WIC, Supplementary Services to Women, Infants, and Children; M, mean; SD, standard deviation.

In 1993 adolescents gave birth to approximately 1 out of 8 infants born in the United States (12.9%).[1] Recent data from the National Center on Health Statistics show that over the past three decades birth rates among adolescents declined, then began to increase, and since 1991 have stabilized.[2] Current birth rates among adolescents are lower than rates in the early 1960s, but higher than in the late 1970s. Although adolescents are physically able to bear children, many adolescents are neither well-informed nor well-prepared for the demanding responsibilities of parenthood.[3] Consequently, children of adolescent parents are at risk for a range of health and developmental problems.[4–9] Two programs that have successfully demonstrated changes in parenting behavior among adolescents used ecological theory to develop programs that were comprehensive, skill-oriented, and designed to effect change in the adolescent mother's life circumstances.[10,11]

Guidelines from prevention science may also be helpful in developing a program to promote healthy parenting among adolescent parents.[12] They recommend that prevention programs be implemented as early as possible before the risk factors have stabilized, that they be targeted to those at highest risk, that they articulate the developmental process that underlies the desired behavioral change, and that they be relevant and sensitive to the cultural context of the participants.

Although the impact of culture on behavior has been recognized throughout history, until recently little attention has been directed toward incorporating culture into programs to promote parenting.[12,13] Betancourt and Lopez[13] argue that cultural sensitivity should address not only physical features of the environment, such as housing, but also subjective features, such as norms, family roles, communication patterns, and values.

Mealtime provides a context for promoting parenting skills among adolescent mothers and their infants that may be both ecologically valid and culturally sensitive. During feeding, infants and care givers establish a synchrony in which they recognize and interpret communication signals from one another.[14,15] This reciprocal process forms a basis for the emotional attachment between infant and care giver that is essential to healthy social functioning. Adolescent care givers, who are inexperienced and may have poor eating habits themselves, may be most in need of assistance to facilitate healthy, nutritious mealtime behavior.[16] A program that includes adolescent mothers serving as positive models while feeding and interacting with their infants at home should be ecologically valid and reflect the cultural sensitivity recommended by prevention science.[12]

Social learning theory may be a particularly effective strategy for altering the parenting behavior of adolescent mothers because it relies on identification

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with culturally sensitive models to demonstrate optimal behavior.[17] Adolescents are often influenced by the behavior they observe in their peers.[18] Television and video are effective ways of providing models and occupy a central position within the lives of many adolescents,[19] but their use has been confined almost exclusively to entertainment. Videotape may be a useful medium to present messages to adolescent mothers regarding healthy nutrition and responsive parent-infant communication. The techniques of fast-moving dialogues, quick editing, musical background, and culturally and developmentally familiar contexts make videotapes appealing to adolescents. The widespread availability of video recorders means that videotapes can be taken home and shared with family members or peers.

Videotapes have been used effectively to promote breastfeeding,[20] prevention of acquired immunodeficiency syndrome risk behaviors,[21–23] sex education,[24] and parenting.[25,26] Using the principles of social learning theory,[17] videotapes that include realistic portrayals of feeding situations involving adolescent mothers and infants may be most likely to promote change. Cultural sensitivity has been an important component in the success of video-based programs, particularly in dealing with African-American youth.[21,22] In addition, clarity, repetition, and brevity are important components to consider in developing compliance-gaining messages.[27] Therefore, we integrated principles from social learning theory into the production of a fast-acting, relatively brief (15-minute) videotape that included real-life segments of urban, adolescent mothers and their infants modeling healthy nutrition and communication during feeding in their homes.

This project had two phases. In the first phase, principles from prevention science and social learning theory were used to develop a culturally sensitive 15-minute videotape to promote reciprocal mealtime communication among African-American adolescent mothers and their young children. In the second phase, the videotape was evaluated among first-time, African-American, adolescent mothers of infants from low-income families. Although adolescent parenting occurs among youth from all socioeconomic backgrounds, children of economically disadvantaged adolescent parents are at greatest risk for negative outcomes.[5] African-American youth were selected because the birth rate for African-American adolescents is more than double the rate for white adolescents.[2] We hypothesized that mothers who watched the videotape and received a copy to take home would improve their attitudes toward feeding and communication, as well as their actual communication during a meal, more than mothers who did not have access to the videotape.

METHODS

Preparation of Videotape

The videotape was developed by assembling an advisory group of adolescent African-American mothers of healthy infants recruited from urban high schools and pediatric health clinics serving low-income families. The infants ranged in age from 4 weeks to 21 months in order to represent the changing developmental skills and needs of infants over their first 2 years of life. The mothers met in focus groups four times over several weeks to develop the real-life vignettes and messages to be included on the videotape and to prepare for the production. An interdisciplinary group of health professionals was available to answer questions and to ensure that the vignettes proposed by the advisory group represented recommended practices. Each focus group discussion was transcribed and the vignettes and messages were reviewed and corrected by the advisory group members at subsequent sessions.

Once the advisory group felt comfortable with the vignettes and messages, plans were finalized for filming. To enhance the ecological validity and cultural sensitivity of the videotape, filming was done in the homes of the mothers in the advisory group and featured realistic and challenging feeding situations (eg, children refusing to eat). The mothers on the videotape chose the food to give their infants and demonstrated both successful and unsuccessful strategies, as they portrayed both the joy and frustration that can exist during meals. The youngest infants were bottle-fed and held in their mother's arms. Older infants were fed in high chairs or a child's table and chair. No professionals or adults were seen or heard on the videotape, except for a narrator who was used occasionally to repeat and highlight statements made by the mothers. The advisory group members participated in selecting the title of the videotape, ("Feeding Your Baby With Love"), the music ("The Greatest Love of All")[a], and the scenes to be included.

Participants

Sixty-four first-time, adolescent, African-American mothers (less than 20 years old at recruitment) and their infants were recruited from urban high schools, WIC Clinics (Supplementary Services to Women, Infants, and Children), and Family Support Centers. The infants were less than 13 months old, in good health with no identified problems, and evenly divided between males and females. Infants who had a history of major perinatal complications, congenital disorders, chronic illnesses, or growth deficiency (weight-for-age less than the 5th percentile based on National Center for Health Statistics charts) were excluded.

The demographic characteristics of the sample are presented in Table 1. At delivery, mothers ranged in age from 14 to 19 years ($M = 16.9$, $SD = 1.3$) and fathers ranged from 15 to 46 years ($M = 19.5$, $SD = 4.5$). Almost three quarters of the fathers (73%) were teenagers at the time of delivery and 47% were within 2 years of the mother's age. Most of the mothers (74%) lived with their mother, 14% lived with the baby's father, and none were married. Most mothers were in school (97%) and received WIC (85%) and/or Medical Assistance (80%). Only 4% of the mothers received child support.

Procedure

Mothers meeting eligibility criteria were invited to participate in the project. Informed consent was obtained using procedures approved by the university's Institutional Review Board.

Data were collected during two laboratory visits. Before the first laboratory visit, mothers were advised that a videotape would be made of them feeding a snack to their child. Feeding was scheduled between 11 AM and 2 PM for a time when the mother thought the child would be hungry. Food was provided (eg, juice, applesauce, and teething biscuits). Mother and child were videotaped in a room equipped with a high chair and adult chairs. Mothers were instructed to sit wherever they preferred and to feed their infants as they did at home. The video camera was visible in the room, but did not require an operator. The mother and infant remained in the room alone for 5 minutes. During this laboratory visit, the mothers completed a questionnaire regarding their attitudes about feeding their baby.

Mothers were then randomized into intervention or control groups. The mothers in the intervention group viewed the videotape made by the advisory group, "Feeding Your Baby With Love," and received a copy to take home. The mothers in the control group did not view the videotape or receive a copy to take home. Mothers in both groups were paid $5 after completing the visit.

[a] Permission obtained from Electronic Music Industry.

TABLE 1. Demographic Description of Adolescent Mothers and Their Children

	Intervention	Control
N	26	33
Mean maternal age, (y) (SD)	17.1 (1.1)	16.5 (1.3)
Mean maternal education, (y) (SD)	9.5 (1.2)	9.9 (1.3)
Maternal marital status (% single)	100%	100%
Mean paternal age, (y) (SD)	19.5 (2.7)	20.3 (6.0)
Mean infant age, (mo) (SD)	5.8 (3.0)	6.3 (3.5)
Gender, (% female)	50%	55%
Household composition		
Mean adults (SD)	1.9 (0.9)	2.2 (1.1)
% Father present	15%	13%
% Grandmother present	69%	77%
Public services		
% WIC	85%	85%
% MA	81%	80%
Child support (% receive)	4%	3%

Abbreviations: SD, standard deviation; WIC, Women, Infants, and Children; MA, Medical Assistance.

Approximately 2 weeks after the first laboratory visit, a second laboratory visit was scheduled. The entire procedure was repeated including the videotaped feeding observation and the feeding questionnaire. Mothers in the intervention group completed a brief questionnaire that asked them to comment on the videotape, "Feeding Your Baby With Love," and to indicate whether they had watched it at home and whether they had shown it to others. Mothers in the control group received a copy of the videotape, "Feeding Your Baby With Love." Mothers in both groups were paid $15 after completing the second laboratory visit.

Measures

Attitudes Toward Mealtime Communication

A 52-item questionnaire on mealtime behavior was developed as a modification of the "About Your Child's Eating" questionnaire developed by Davies et al.[28] Questions addressed the changing nutritional and developmental needs of young children, along with the social environment of mealtime. Items were scored on a 5-point scale. Negative items were reverse-coded, with high scores representing optimal responses.

Ten items from the questionnaire were selected to develop a scale representing the content of the videotape (Table 2). The scale described maternal attitudes toward feeding, and focused on reciprocal communication and a pleasant mealtime context. The internal consistency of the scale, measured by coefficient α,[29] was .64 after the first administration and .76 after the second administration. An α greater than .60 suggests that the scale is measuring a single construct.[29]

Parent-Child Interaction

Maternal behavior was measured by a modified version of the Parent Child Early Relational Assessment (Clark R, Musick JS, Stott FM, Klehr KB,Cohler B, unpublished document).[30] The scale was chosen because it captures the affective quality of the parent-child relationship, appears to be sensitive to the changing demands of parenting over the infant and toddler period, and factors from both the parent and child domains have been significantly related to security of attachment.[31] Modifications to the original items were made to reduce redundancy and to increase clarity. Each item was scored on a 5-point scale, with higher scores reflecting more optimal behavior. The scale has been validated among a similar sample of African-American infants and toddlers from low-income, urban families.[32]

TABLE 2. Questionnaire Items That Represent Attitudes Toward Mealtime Communication

Mealtimes are an important time for me to talk to my baby.
I can tell when my baby dislikes something.
I can tell when my baby is hungry.
I can tell when my baby is full.
I talk to my baby during mealtimes.
My baby watches me during feeding.
Reverse-coded
I feel tense during mealtimes.
It's hard to figure out when my baby is hungry.
Mealtime is tense.
I feel frustrated by my baby's messiness during feeding.

The videotapes were scored by a rater who had been trained and had established inter-rater reliability using videotapes available from a similar sample.[32] Five-minute segments were scored. No identifying names or codes were visible on the videotapes, so the rater could not determine group identity or the order in which the videotapes were made. Scores from three variables were averaged to create an observational construct of maternal communication: the amount of verbalizations, the quality of verbalizations, and the amount of creativity the mother expressed during interaction with her infant. Examples of behaviors coded as creative included playing airplane or choo-choo games, exaggerated facial expressions, and playful vocalizations. The internal consistency of the items, measured by coefficient α,[29] was .76 during the first observation and .78 during the second observation, indicating that they represented a single construct.

Analysis

Analyses were conducted using Statistical Programming for Social Sciences (Chicago, IL). Changes in scores from the first to the second visits on the two outcome variables (attitudes toward feeding and maternal communication during mealtime) were examined by multivariate analysis of covariance with repeated measures, using group (intervention or control) as the between variable and time as the within variable. The ages of the mothers and infants were entered as covariates because attitudes toward feeding and maternal communication during mealtimes are likely to vary as children age and acquire more feeding skills. This analysis controls for baseline scores and examines changes over time. A significant group-by-time interaction would indicate that the scores from the two groups differed from the first to the second visits. In the case of a significant interaction, separate analyses of covariance were conducted to examine the changes in each outcome variable. Again, significant group-by-time interactions would suggest that the scores from mothers in the intervention group differed from scores from mothers in the control group.

Correlations were conducted to examine consistency between outcome variables at each visit. Positive correlations would suggest a consistency between respondents' attitudes on the self-report maternal attitude scale and their observed behavior during feeding.

Participants were asked to comment on the videotape and to make recommendations for improvements. Responses were recorded verbatim and examined for consensus and clarity.[33] Qualitative data are often used to enhance quantitative data by analyzing participants' own words and responses.[34,35]

RESULTS

Quantitative

Fifty-nine of the 64 adolescent mothers (92%) returned for the second laboratory visit. Multiple follow-up appointments were scheduled and three mothers in the intervention group and two in the control group failed to attend. No differences were found between those who returned and those who did not on any of the demographic variables or on the measures administered during the first laboratory visit. Analyses of variance for continuous variables and χ^2 analyses for categorical variables were also conducted to examine possible demographic differences between the intervention and control groups. No significant differences were found.

In the multivariate analysis of covariance with repeated measures there was a significant group-by-time interaction ($F_{2,56}$= 11.74, P = .001). There were also significant group-by-time interactions in the

analysis examining changes in maternal attitudes toward mealtime ($F_{1,57} = 20.06$, $P = .001$) and in maternal communication during mealtime ($F_{1,57} = 4.31$, $P = .04$). In both cases there were no differences at the first visit, but at the second visit mothers who viewed the videotape and received a copy to take home reported more favorable attitudes and were more communicative during the meal (Table 3).

During the first laboratory visit there was little consistency between maternal self-report of attitudes toward mealtime behavior and observed behavior ($r = .10$, $P > .10$). However, during the second laboratory visit, mothers who reported positive attitudes were observed to be more involved with their children during feeding ($r = .35$, $P < .01$), indicating consistency between attitudes and behavior.

Qualitative

All of the adolescents reported that they had access to a videotape recorder in their home. Mothers who received the videotape watched it at home (M = 2.4 viewings) and showed it to family members and friends (M = 2.1 others). The mothers made very positive comments about the videotape and often compared themselves to images they recalled from the videotape. One young mother demonstrated the importance of modeling from other teen mothers when she said, "It makes young parents feel good to watch other young parents with their baby." Another mother said, "It was nice because the girls was expressing how they felt about their babies and theirselves." A third mother said, "I admire the young mothers for taking time to feed their babies with love–that's real important."

One young mother expressed the ambivalence that many adolescent mothers may feel as they approach the realities of parenting: "I would have a message saying, 'If you don't have none, don't make none.'" Finally, when asked what improvements they would make in the videotape, one mother said, "I would make it longer." Another mother said, "I'd make another one about playing with your baby with love." These statements illustrate the mothers' receptivity and their desire to gain information about parenting and caring for their infants.

DISCUSSION

Findings suggest that a brief culturally sensitive videotape is effective in altering mealtime attitudes and enhancing maternal mealtime communication among low-income, first-time African-American, adolescent mothers of infants. The change in behavior is particularly encouraging because most other interventions based on videotapes have been limited to changes in knowledge or attitudes.[21–24] Only Webster-Stratton,[25,26] who works with parents of children with conduct disorders, has demonstrated a behavioral change associated with intervention delivered through videotape.

The consistency between maternal attitudes and behavior provides empirical validation to the principles of social learning theory.[17] Mothers who self-report the importance of communicating with children were most likely to communicate with their children during the mealtime observation. By seeing and hearing appropriate mealtime behaviors modeled on a culturally sensitive videotape, the adolescent mothers identified with the mothers and children on the videotape and adopted their attitudes and behaviors. This view is supported by the qualitative data, which suggested that the adolescent mothers tried to emulate what they saw and heard on the videotape. Too often adolescent mothers are reminded of their mistakes, and are not given credit for their parenting strengths. The comments from these adolescent mothers demonstrate how powerful peer modeling can be.

The recommendations from prevention science[12] were helpful in developing a program to promote parenting among adolescent mothers because they led to enhanced communication skills that adolescents should be able to apply multiple times a day as they feed their children. These changes in daily behavior are likely to lead to ongoing improvements in parenting as they become incorporated into the adolescent mothers' behavioral repertoire.[10,11]

Despite the optimism associated with a positive change in maternal attitudes and behavior, some caution is warranted in interpreting these findings. First, the adolescent mothers in this sample may represent a select group. Although they were all from low-income families, most were still in school and demonstrated relatively high levels of communication with their baby at baseline. Nevertheless, viewing the videotape still led to significant, albeit limited, improvement in both attitudes and behavior. Further research should examine whether the videotape can promote positive parenting attitudes and behaviors, and prevent feeding problems among higher risk groups of adolescent mothers, such as those with multiple children, those with children who are not growing adequately, or those who have dropped out of school.

TABLE 3. Mean Scores on Dependent Variables for Adolescent Mothers

	First Visit		Second Visit	
	Intervention	Control	Intervention	Control
	(n = 26) M (SD)	(n = 33) M (SD)	(n = 26) M (SD)	(n = 33) M (SD)
Maternal attitudes toward mealtime communication	21.8 (7.2)	22.1 (8.1)	30.1 (6.2)	21.1 (7.5)
Maternal mealtime communication	4.2 (0.5)	4.2 (0.5)	4.4 (0.6)	4.1 (0.5)

Abbreviations: M, mean; SD, standard deviation.

The changes in attitudes and behaviors occurred over a relatively short period of time (2 to 3 weeks), and no information is available on the durability of the changes. Although the consistency between maternal attitudes and communicative behavior during feeding at the second visit is encouraging and should enhance the likelihood of maintaining positive communication during mealtimes, long-term follow-up is necessary to determine the longevity of the change and whether booster interventions are necessary.

Because the comparison was between a culturally sensitive videotape and no videotape, we can not be sure that the cultural sensitivity of the videotape was a critical feature. However, the qualitative comments from the mothers suggest that they identified with the young parents on the videotape, as predicted by social learning theory. In order to examine the importance of cultural sensitivity, a comparison would have to be made between a culturally sensitive videotape and a videotape that was strictly informational. In research with African-American women at risk for human immunodeficiency virus infection, Kalichman and colleagues[21,36] have shown that low-cost videotapes that reflect the cultural norms, values, and language of the women, but were made with limited resources, were more effective in altering risk behavior than professionally produced videotapes that were less culturally sensitive.

In summary, videotape represents an innovative, cost-effective method of involving low-income, urban families in the prevention of important social problems. The African-American, adolescent mothers in the advisory group were able to convey both the joy of having an infant who eats successfully and grows well and the frustration associated with feeding difficulties. The use of culturally appropriate food, settings, language, and music may have enhanced the probability of success by enabling viewers to identify with models and to listen to their recommendations to promote healthy feeding patterns and mealtime behavior. Videotapes are inexpensive to copy and can be distributed widely. They enable pediatricians and other providers to extend interventions from clinical and educational settings into adolescents' homes and communities. The universality of videotape recorders makes videotapes a particularly feasible strategy among adolescents who may be more accustomed to acquiring information through visual media than through printed material. Thus, using adolescent parents as positive role models on brief, culturally sensitive videotapes appears to be an effective means to promote positive behavior and attitudes toward parenting and may be an effective strategy to prevent other social and health problems among adolescents.

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